Haksu Lee

NOAA/NWS/OHD/Hydrology Laboratory
1325 East-West Highway
Silver Spring, MD 20910
Voice: 301-713-0640 ext 151
FAX: 301-713-0963
E-mail: Haksu.Lee@noaa.gov

Education
- 2007(expected), Ph.D. (Environmental Systems Engineering), The University of Western Australia.
- 2002, MS (Clean Technology), Pusan National University.
- 2000, BS (Environmental Engineering), Pusan National University.

Research Interests
- Hydrological modeling: lumped, distributed, physically-based, conceptual, small to large scale, parameter estimation, uncertainty analysis
- The data assimilation of various hydrological variables, e.g., snow, soil moisture content, streamflow, and climatic forcing
- Hydrologic ensemble prediction
- Remote sensing

Experience
- The University of Illinois at Urbana-Champaign, USA, Graduate Assistant, Dec 2005 ~ Aug 2006
- The University of Western Australia, Australia, Teaching Assistant, Feb 2004 ~ Jan 2005
- Institute for Environ. Tech. and Industry, Pusan, Korea, Research Assistant, Apr 2002 ~ Feb 2003
- Pusan National University, Korea, Teaching Assistant, Feb 2000 ~ Aug 2000

Service

Awards
- DAAD (Deutscher Akademischer Austausch Dienst) Visiting Fellowship, 2005
- UCAR (University Corporation for Atmospheric Research) Postdoctoral Fellowship, 2006

Publications

- **Lee H.,** Sivapalan M., and Zehe E. (2006a): Cooperative Community Catchment model based on the Representative Elementary Watershed approach: numerical model development, benchmark tests and an application, submitted to *Water Resources Research*.

- **Lee H.**, Zehe E., and Sivapalan M. (2006b): Predictions of rainfall-runoff response and soil moisture dynamics in a microscale catchment using the CREW model, submitted to *Hydrology and Earth System Sciences*.

- **Lee H.**, Sivapalan M., and Zehe E. (2006c): Application of the Distributed Physically Based Model, CREW, to Two Mesoscale Australian Catchments in Contrasting Climates, submitted to *Journal of Hydrology*.

- **Lee H.**, Zehe E., and Sivapalan M. (2006d): Investigation of runoff prediction uncertainty and parameter sensitivity for the distributed model CREW using GLUE, submitted to *Advances in Water Resources.*

- Zehe E., **Lee H.,** and Sivapalan M. (2006): Dynamical process upscaling for deriving catchment scale state measures and constitutive relations for meso-scale process models. Submitted to *Hydrology and Earth System Sciences*.

- **Lee H.**, Sivapalan M. and Zehe E. (2005a): Representative Elementary Watershed (REW) approach, a new blueprint for distributed hydrologic modelling at the catchment scale." In: *PREDICTIONS IN UNGAUGED BASINS: INTERNATIONAL PERSPECTIVES ON STATE-OF-THE-ART AND PATHWAYS FORWARD*, Proceedings of the Australia-Japan Workshop on PUB Working Groups, Edited by S. W. Franks, M. Sivapalan, K. Takeuchi and Y. Tachikawa, IAHS Press, Wallingford, Oxon, UK.

- **Lee H.**, Sivapalan M., and Zehe E. (2005b): Representative Elementary Watershed (REW) approach, a new blueprint for distributed hydrologic modelling at the catchment scale: the development of closure relations. In:

PREDICTING UNGAUGED STREAMFLOW IN THE MACKENZIE RIVER BASIN: TODAY'S TECHNIQUES & TOMORROW'S SOLUTIONS, C. Spence, J. W. Pomeroy and A. Pietroniro (Editors), Canadian Water Resources Association (CWRA), Ottawa, Canada

- Zehe, E., **Lee H.** and Sivapalan M. (2005): Derivation of closure relations and commensurate state variables for mesoscale hydrological models using dynamical upscaling. In: *PREDICTIONS IN UNGAUGED BASINS*: *INTERNATIONAL PERSPECTIVES ON STATE-OF-THE-ART AND PATHWAYS FORWARD*, Edited by S. W. Franks, M. Sivapalan, K. Takeuchi and Y. Tachikawa, IAHS Press, Wallingford, Oxon, UK.

- Kim S.H., and **Lee H.** (2004): A digital elevation analysis: a spatially distributed flow apportioning algorithm, *Hydrological Processes*, 18, 1777-1794.

- **Lee H.**, Kang C.H., Kim S.H., and Jung S.W. (2003): Entropy Interpretation Of Flow Distribution Algorithms, Journal of Korea Water Resources Association, 36(2), 263-271.

- Kim S.H., **Lee H.**, Kang C.Y., and Kim N.W. (2002): Development of Optimized Flow Apportioning Algorithm Using Natural Stream Morphology, *Journal of Korea Water Resources Association*, 35(4), 345-358.

- **Lee H.**, Kim N.W., and Kim S.H. (2002): Generalization of Modified TOPMODEL for Rainfall-Runoff Analysis of Sulmachun Watershed, *Journal of Korea Water Resources Association*, 35(3), 295-306.

- Kim K.H., **Lee H.**, Kim W., Jung S.W., and Kim S.H. (2002): The Effects of Time Scale Variation on The Runoff Calculation of TOPMODEL, *Journal of Korea Water Resources Association*, 35(2), 125-136.

- **Lee H.**, Han J.Y., Kim K.H., and Kim S.H. (2001a): Runoff Analysis of Modified TOPMODEL with Subsurface Storm Flow Generation Mechanism, *Journal of Korea Water Resources Association*, 34(4), 403-411.

- **Lee H.**, Kim K.H., Han J.Y., and Kim S.H. (2001b): Prediction of Soil Moisture Distribution Using Digital Terrain Indices, *Journal of Korea Water Resources Association*, 34(4), 391-401.

Presentations

- **Lee H.**, Sivapalan M., and Zehe E. (2005): Representative Elementary Watershed (REW) approach to distributed hydrologic modeling at the catchment scale: development of closure relations, *VIIth IAHS Scientific Assembly*, Foz do Iguacu, Brazil.

- Sivapalan M., **Lee H.**, and Zehe E. (2005): Representative Elementary Watershed (REW) approach to distributed hydrologic modeling: a novel contribution to predictions in ungauged basins, *VIIth IAHS Scientific Assembly*, Foz do Iguacu, Brazil.

- Zehe E., **Lee H.**, and Sivapalan M. (2005): Modelling a small loess catchment in Germany using a Representative Elementary Watershed model, *VIIth IAHS Scientific Assembly*, Foz do Iguacu, Brazil.

- **Lee H.**, and Sivapalan M. (2004): Numerical Model Construction and Design of Closure Scheme for the Representative Elementary Watershed Approach, *Australia-Japan PUB (Predictions in Ungauged Basins) Workshop, Perth, Western Australia.*

- Zehe E., **Lee H.**, and M. Sivapalan (2004): Use of the REW concept for PUB: Bridging the gap between local Process Models and Mesoscale Models, *Australia-Japan PUB (Predictions in Ungauged Basins) Workshop, Perth, Western Australia.*

- Sivapalan M., **Lee H.**, and Zehe E. (2004): Towards development of a new generation of physical models at the catchment scale using the Representative Elementary Watershed (REW) approach: a progress report, *2nd APHW Conference, Singapore, July 2004*

- **Lee H.**, Kim K.H., Han J.Y., and Kim S.H. (2001): The Relationship of Between The Spatial Distribution of Surface Soil Moisture and Terrain Indices, *Proceeding of the Korea Water Resources Association Conference*

- **Lee H.,** and Kim S.H. (2001): Optimization of Flow Determination Algorithm, *The 3rd Cross Straight Symposium*

- Kim K.H., **Lee H.**, Kim B.G., and Kim S.H. (2001): The Effect of Time Scale Variation on TOPMODEL simulation, *Proceeding of the Korea Water Resources Association Conference*

- Kim S.H., Kim K.H., **Lee H.**, and Son M.H. (2001): A Digital Elevation Analysis: Spatially Distributed Flow Apportioning Algorithm, *Proceeding of the Korea Water Resources Association Conference*

- Jung S.H., Kim S.H., **Lee H.**, and Son H.J. (2000): Application of Generalized Transmissivity Decreasing Function in TOPMODEL Operation, *Proceeding of the Korea Water Resources Association Conference*